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मानक

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“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 8271-5-2 (1986): Quartz Crystal Units Used for Frequency Control and Selection, Part 5: Series CX for Oscillators, Section 2: Quartz Crystal Unit Type CX-02 [LITD 5: Semiconductor and Other Electronic Components and Devices]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

SPECIFICATION FOR
QUARTZ CRYSTAL UNITS USED FOR
FREQUENCY CONTROL AND SELECTION

PART 5 SERIES CX FOR OSCILLATORS

Section 2 Quartz Crystal Unit Type CX-02

0. General — This standard shall be read in conjunction with IS : 8271 (Part 1)-1981 'Specification for quartz crystal units used for frequency control and selection: Part 1 General requirements and tests (*first revision*)'.

1. Outline and Dimensions — Holder outline shall conform to type CX [*see* IS : 4570 (Part 6)-1984 Specification for crystal unit holders: Part 6 Metal, solder seal, two pin crystal unit holder types CX].

2. Marking — *See* 8 of IS : 8271 (Part 1)-1981.

3. Construction and Workmanship — *See* 7 of IS : 8271 (Part 1)-1981.

4. Test Schedule and Detail Requirements

4.1 General Conditions for Test — *See* 9.2 of IS : 8271 (Part 1)-1981.

4.2 Test Schedule — The sequence and grouping of type, routine and acceptance tests shall be as per 9.1 of IS : 8271 (Part 1)-1981.

4.3 Detail Requirements — The detail requirements applicable to this particular type of crystal unit shall be as specified in Table 1.

TABLE 1 DETAIL REQUIREMENTS OF QUARTZ CRYSTAL UNIT TYPE CX-02

Sl No.	Characteristics	Requirements
i)	Type of holder	CX (<i>see</i> 1)
ii)	Frequency range	2.9 to 20 MHz
iii)	Frequency tolerance:	
	a) Operating temperature range	± 50 ppm
iv)	Load capacitance	30.0 ± 0.5 pF
v)	Mode of oscillation	Fundamental
vi)	Operating temperature range	$- 55^{\circ}\text{C}$ to $+ 105^{\circ}\text{C}$
vii)	Test set, calibration values and rated drive level	<i>See</i> Table 2
viii)	Capacitance shunt	7 pF maximum
ix)	Resonance resistance	<i>See</i> Table 3
x)	Shock [as per 9.15 (Severity A) of IS : 8271 (Part 1)-1981]:	
	a) Frequency change permitted	± 5 ppm
	b) Resonance resistance change permitted	± 10 percent
xi)	Vibration [as per 9.16.1 (Severity A) of IS : 8271 (Part 1)-1981]:	
	a) Frequency change permitted	± 5 percent
	b) Resonance resistance change permitted	± 10 percent
xii)	Temperature cycling:	
	a) Frequency change permitted	± 5 ppm
	b) Resonance resistance change permitted	± 10 percent
xiii)	Ageing:	
	i) Frequency change permitted	5 ppm

TABLE 2 TEST SET, CALIBRATION VALUES AND RATED DRIVE LEVEL

[Table 1 (vii)]

SI No.	Frequency Range	Calibration Values			Rated Drive Level	Test Set
		Resistance	Crystal Current	Resistor Voltage Drop		
(1)	(2) MHz	(3) ohms	(4) mA	(5) Volts	(6) mW	(7)
i)	From 2.9 to 5.1	50	10	—	5.0 ± 1.0	TS-330/TSM
ii)	Over 5.1 to 7.5	22	15	—	5.0 ± 1.0	
iii)	Over 7.5 to 10	13	20	—	5.0 ± 1.0	
iv)	Over 10 to 20	10	—	0.22	5.0 ± 1.0	TS-683/TSM

TABLE 3 EQUIVALENT RESONANCE RESISTANCE

[Table 1 (ix)]

SI No.	Frequency Range	Maximum Resonance Resistance
(1)	(2) MHz	(3) ohms
i)	From 2.9 to 3.75	180
ii)	Over 3.75 to 4.75	120
iii)	Over 4.75 to 6	75
iv)	Over 6 to 7	50
v)	Over 7 to 10	30
vi)	Over 10 to 20	25

EXPLANATORY NOTE

This standard (Part 5/Sec 2) covers the requirements of crystal units quartz, style QC-21 of JSS 50906 (1971) 'Detail specification for crystal unit, quartz styles QC-20, QC-21, QC-22, QC-23 and QC-26' issued by the Directorate of Standardization, Ministry of Defence (India).